

What is Claimed is:

1. In the electrode production method for producing an electrode including a rectangular electrode carrier and a gel electrolyte film formed on the electrode carrier and having a width greater than the electrode carrier, the method comprising of:

an overlaying step for overlaying a first carrier having a greater width than the gel electrolyte film, a second carrier having a width approximately identical to that of the gel electrolyte film, and the electrode carrier in this order,

a coating step for applying an electrolyte composition onto the first carrier, the second carrier, and the electrode carrier which have been put upon one another in the overlaying step, in such a manner that the applied electrolyte composition has a width greater than the width of the second carrier and smaller than the width of the first carrier,

a first peel-off step for peeling off from the first carrier the second carrier and the electrode carrier coated with the gel electrolyte composition in the coating step and overlaid on each other,

a gelling step for forming into a gel electrolyte film the electrolyte composition applied onto the second carrier and the electrode carrier which have been peeled off from the first carrier in the first peel-off step, and

a second peel-off step for peeling off from the second carrier the electrode carrier and the gel electrolyte film gelled in the gelling step.

2. The electrode production method of Claim 1, wherein the electrolyte composition in the coating step is in a sol state.

3. The electrode production method of Claim 2, wherein the electrolyte composition contains an electrolyte salt, matrix polymer, and a swelling solvent.

4. The electrode production method of Claim 3, wherein the electrolyte salt is further defined as being selected from the group consisting of LiPF_6 , LiAsF_6 , LiClO_4 , LiCF_3SO_3 , $\text{Li}(\text{CF}_3\text{SO}_2)_2\text{N}$, and $\text{LiC}_4\text{F}_9\text{SO}_3$.

5. The electrode production method of Claim 3, wherein the matrix polymer is further defined as being selected from the group consisting of polyacrylonitrile, polyvinylidene fluoride, polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphazene, polysiloxane, polyvinyl acetate, polyvinyl alcohol, polymethyl methacrylate, polyacrylic acid, polymethacrylic acid, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene, and polycarbonate.

6. The electrode production method of Claim 3, wherein the swelling solvent is further defined as being selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, γ -butyrolactone, γ -valerolactone,

diethoxyethane, tetrahydrofuran, 2-methyl tetrahydrofuran, 1, 3-dioxane, methyl acetate, methyl propionate, dimethyl carbonate, diethyl carbonate, and ethylmethyl carbonate.

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7. The electrode production method of Claim 1, wherein in the first peel-off step, the first carrier has the adhesion with the electrolyte composition higher than the adhesion between the second carrier and the electrolyte composition.

8. The electrode production method of Claim 1, wherein in the second peel-off step, the second carrier has the adhesion with the gel electrolyte film lower than the adhesion between the electrode carrier and the gel electrolyte film.

9. The electrode production method of Claim 8, wherein the second carrier consists of a synthetic resin.

10. The electrode production method of Claim 9, wherein the synthetic resin consists of propylene.

11. In the gel electrolyte cell production method using an electrode including a rectangular electrode carrier and a gel electrolyte film formed on the electrode carrier and having a width greater than the electrode carrier, the electrode being produced by:

an overlaying step for overlaying a first carrier having a greater width than the gel electrolyte film, a second carrier having a width approximately identical to that of the gel electrolyte film, and the electrode carrier in this order,

a coating step for applying an electrolyte composition onto the first carrier, the second carrier, and the electrode carrier which have been put upon one another in the overlaying step, in such a manner that the applied electrolyte composition has a width greater than the width of the second carrier and smaller than the width of the first carrier,

a first peel-off step for peeling off from the first carrier the second carrier and the electrode carrier coated with the gel electrolyte composition in the coating step and overlaid on each other,

a gelling step for forming into a gel electrolyte film the electrolyte composition applied onto the second carrier and the electrode carrier which have been peeled off from the first carrier in the first peel-off step, and

a second peel-off step for peeling off from the second carrier the electrode carrier and the gel electrolyte film gelled in the gelling step.

12. The gel electrolyte cell production method of Claim 11, wherein the electrolyte composition in the coating step is in a sol state.

13. The gel electrolyte cell production method of Claim 12, wherein the

electrolyte composition contains an electrolyte salt, matrix polymer, and a swelling solvent.

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14. The gel electrolyte cell production method of Claim 13, wherein the electrolyte salt is further defined as being selected from the group consisting of LiPF_6 , LiAsF_6 , LiClO_4 , LiCF_3SO_3 , $\text{Li}(\text{CF}_3\text{SO}_2)_2\text{N}$, and $\text{LiC}_4\text{F}_9\text{SO}_3$.

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15. The gel electrolyte cell production method of Claim 13, wherein the matrix polymer is further defined as being selected from the group consisting of polyacrylonitrile, polyvinylidene fluoride, polytetrafluoroethylene, polyhexafluoropropylene, polyethylene oxide, polypropylene oxide, polyphosphazene, polysiloxane, polyvinyl acetate, polyvinyl alcohol, polymethyl methacrylate, polyacrylic acid, polymethacrylic acid, styrene-butadiene rubber, nitrile-butadiene rubber, polystyrene, and polycarbonate.

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16. The gel electrolyte cell production method of Claim 13, wherein the swelling solvent is further defined as being selected from the group consisting of ethylene carbonate, propylene carbonate, butylene carbonate, γ -butyrolactone, γ -valerolactone, diethoxyethane, tetrahydrofuran, 2-methyl tetrahydrofuran, 1,3-dioxane, methyl acetate, methyl propionate, dimethyl carbonate, diethyl carbonate, and ethylmethyl carbonate.

17. The gel electrolyte cell production method of Claim 11, wherein in the first peel-off step, the first carrier has the adhesion with the electrolyte composition higher than the adhesion between the second carrier and the electrolyte composition.

18. The gel electrolyte cell production method of Claim 11, wherein in the second peel-off step, the second carrier has the adhesion with the gel electrolyte film lower than the adhesion between the electrode carrier and the gel electrolyte film.

19. The gel electrolyte cell production method of Claim 18, wherein the second carrier consists of a synthetic resin.

20. The gel electrolyte cell production method of Claim 19, wherein the synthetic resin consists of propylene.

21. An electrode produced by the method of Claim 1.

22. A gel electrolyte cell comprising of the electrode of Claim 21.

23. A gel electrolyte cell of Claim 22, wherein the positive electrode and the negative electrode are cut into predetermined lengths each other, and attached to each other so that the gel electrolyte film faces to each other, and rolled in the longitudinal

direction, and packed in an exterior film made from an insulation material.

24. A gel electrolyte cell of Claim 23, wherein a positive electrode lead is welded on the positive electrode and a negative electrode lead is welded on the negative electrode, and these leads protrude through the seal portions of the exterior film.